

# 6AL11

## Beam Power Tube— Sharp-Cutoff Pentode

For Combined FM Detector and Audio-Frequency  
Output Amplifier Applications in TV Receivers

### DUODECAR TYPE

#### Electrical:

Heater Characteristics and Ratings:

Voltage (AC or DC). . . . .  $6.3 \pm 0.6$  volts  
Current at heater volts = 6.3 . . . . . 0.9 amp

Peak heater-cathode voltage (Each unit):

Heater negative with respect to cathode. 200 max. volts  
Heater positive with respect to cathode. 200<sup>a</sup> max. volts

Direct Interelectrode Capacitances (Approx.):<sup>b</sup>

**Beam Power Unit:**

Grid No.1 to plate. . . . . 0.26 pf  
Input:  $G_{1B}$  to ( $K_B + G_{3B}, G_{2B}, IS, H$ ). . . . . 11 pf  
Output:  $P_B$  to ( $K_B + G_{3B}, G_{2B}, IS, H$ ). . . . . 12 pf

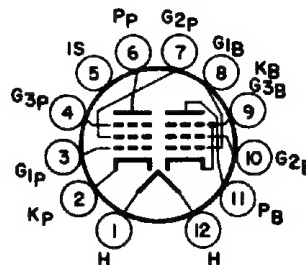
**Pentode Unit:**

$G_{1P}$  to  $P_P$ . . . . . 0.034 pf  
 $G_{3P}$  to  $P_P$ . . . . . 3.2 pf  
 $G_{1P}$  to ( $K_P, G_{2P}, G_{3P}, IS, H$ ). . . . . 6.5 pf  
 $G_{3P}$  to ( $K_P, G_{1P}, G_{2P}, P_P, IS, H$ ). . . . . 7.5 pf  
 $G_{1P}$  to  $G_{3P}$ . . . . . 0.24 pf  
 $P_B$  to  $P_P$ . . . . . 0.12 pf

#### Mechanical:

Operating Position. . . . . Any  
Type of Cathodes. . . . . Coated Unipotential  
Maximum Overall Length. . . . . 2.625" ←  
Seated Length. . . . . 2.000" to 2.250" ←  
Diameter. . . . . 1.062" to 1.188"  
Dimensional Outline (JEDEC 9-59). . . . . See *General Section*  
Bulb. . . . . T9  
Base. . . . . Small-Button Duodecar 12-Pin (JEDEC No. E12-70)  
Basing Designation for BOTTOM VIEW. . . . . 12BU

Pin 1—Heater  
Pin 2—Pentode Cathode  
Pin 3—Pentode Grid No.1  
Pin 4—Pentode Grid No.3  
Pin 5—Internal Shield  
Pin 6—Pentode Plate  
Pin 7—Pentode Grid No.2  
Pin 8—Beam Power Grid No.1  
Pin 9—Beam Power Cathode,  
Beam Power Grid No.3  
Pin 10—Beam Power Grid No.2  
Pin 11—Beam Power Plate  
Pin 12—Heater



<sup>a</sup> The dc component must not exceed 100 volts.

<sup>b</sup> without external shield.

← Indicates a change.



RADIO CORPORATION OF AMERICA  
Electronic Components and Devices

Harrison, N. J.

DATA 1  
10-66

# 6AL11

## Characteristics, Class A<sub>1</sub> Amplifier (Pentode Unit):

Plate Supply Voltage. . . . .	150	volts
Grid-No.3 . . . . .	Connected to cathode at socket	
Grid-No.2 Supply Voltage. . . . .	100	volts
Grid-No.1 . . . . .	Connected to negative end of cathode resistor	
Cathode Resistor. . . . .	560	ohms
Plate Resistance (Approx.). . . . .	0.15	megohm
Transconductance, Grid No.1 to Plate. . . . .	1000	$\mu$ hos
Transconductance, Grid No.3 to Plate. . . . .	400	$\mu$ hos
Plate Current . . . . .	1.3	ma
Grid-No.2 Current . . . . .	2.1	ma
Grid-No.1 Voltage (Approx.) for plate $\mu$ a = 30 .	-4.5	volts
Grid-No.3 Voltage (Approx.) for plate $\mu$ a = 50 .	-4.5	volts

## PENTODE UNIT — FM SOUND DETECTOR

### Maximum Ratings, Design-Maximum Values:

Plate Voltage . . . . .	330 max.	volts
Grid-No.3 (Suppressor-Grid) Voltage . . . . .	28 max.	volts
Grid-No.2 (Screen-Grid) Supply Voltage. . . . .	330 max.	volts
Grid-No.2 Voltage . . . . .	See Grid-No.2 Input Rating Chart at front of Receiving Tube Section	
Grid-No.1 (Control-Grid) Voltage:		
Positive-bias value . . . . .	0 max.	volts
Plate Dissipation . . . . .	1.7 max.	watts
Grid-No.2 Input:		
For grid-No.2 voltages up to 165 volts. . . . .	1.1 max.	watts
For grid-No.2 voltages between 165 and 330 volts . . . . .	See Grid-No.2 Input Rating Chart at front of Receiving Tube Section	

## BEAM POWER UNIT — AMPLIFIER — Class A<sub>1</sub>

### Maximum Ratings, Design-Maximum Values:

Plate Voltage . . . . .	275 max.	volts
Grid-No.2 (Screen-Grid) Voltage . . . . .	275 max.	volts
Plate Dissipation . . . . .	10 max.	watts
Grid-No.2 Input . . . . .	2 max.	watts

### Typical Operation and Characteristics:

Plate Voltage . . . . .	250	volts
Grid-No.2 Voltage . . . . .	250	volts
Grid-No.1 (Control-Grid) Voltage. . . . .	-8	volts
Peak AF Grid-No.1 Voltage . . . . .	8	volts
Zero-Signal Plate Current . . . . .	35	ma
Max.-Signal Plate Current . . . . .	39	ma
Zero-Signal Grid-No.2 Current . . . . .	2.5	ma
Max.-Signal Grid-No.2 Current . . . . .	7	ma
Plate Resistance (Approx.). . . . .	0.1	megohm
Transconductance. . . . .	6500	$\mu$ hos
Load Resistance . . . . .	5000	ohms
Total Harmonic Distortion . . . . .	10	per cent
Max.-Signal Power Output. . . . .	4.2	watts

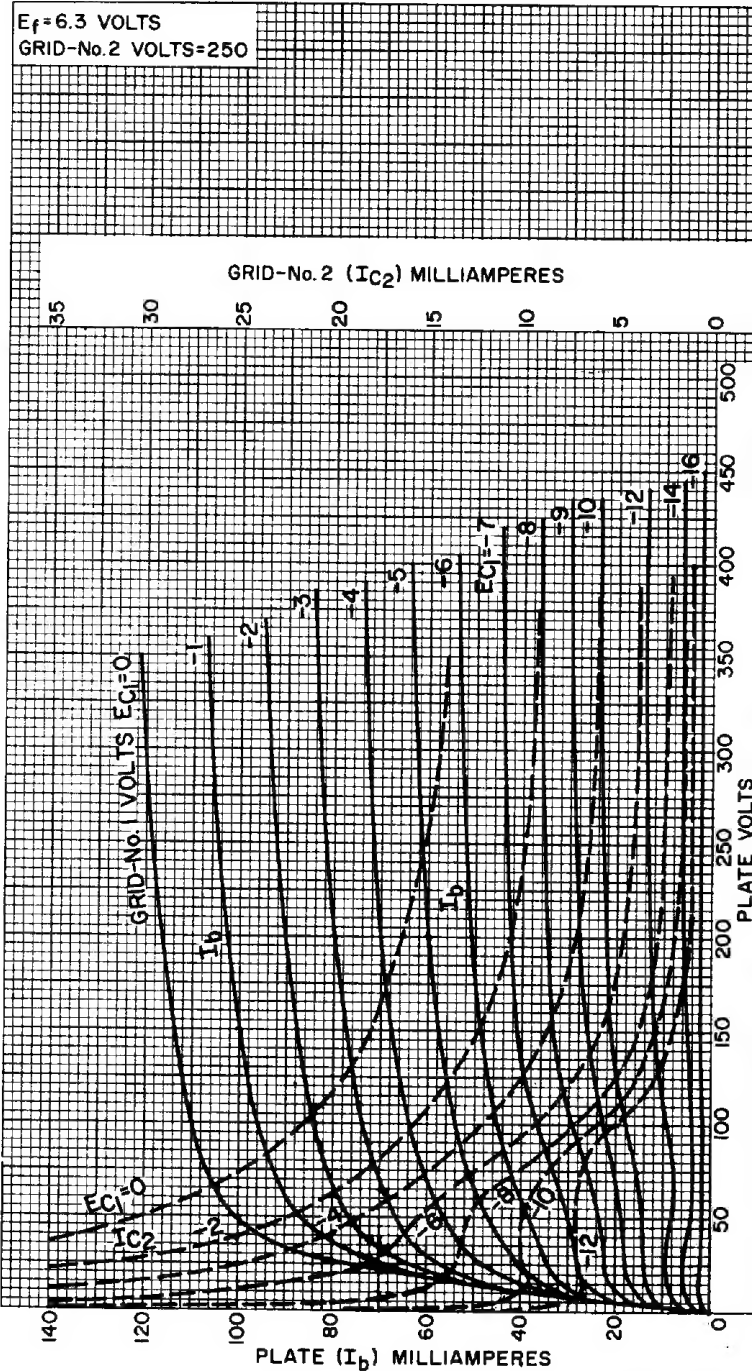
### Maximum Circuit Values:

Grid-No.1-Circuit Resistance:		
For fixed-bias operation. . . . .	0.25 max.	megohm
For cathode-bias operation. . . . .	0.5 max.	megohm



# 6AL11

## AVERAGE CHARACTERISTICS Beam Power Unit

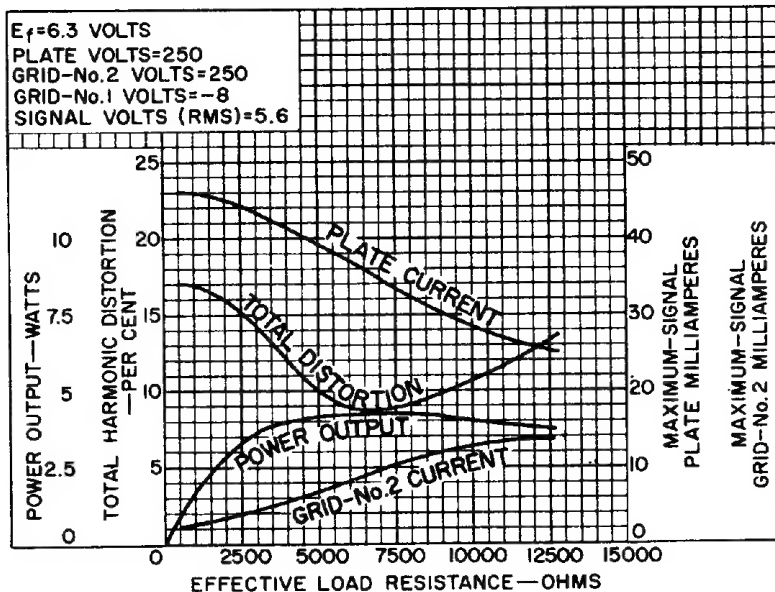


RADIO CORPORATION OF AMERICA  
Electronic Components and Devices  
Harrison, N. J.

DATA 2  
8-64

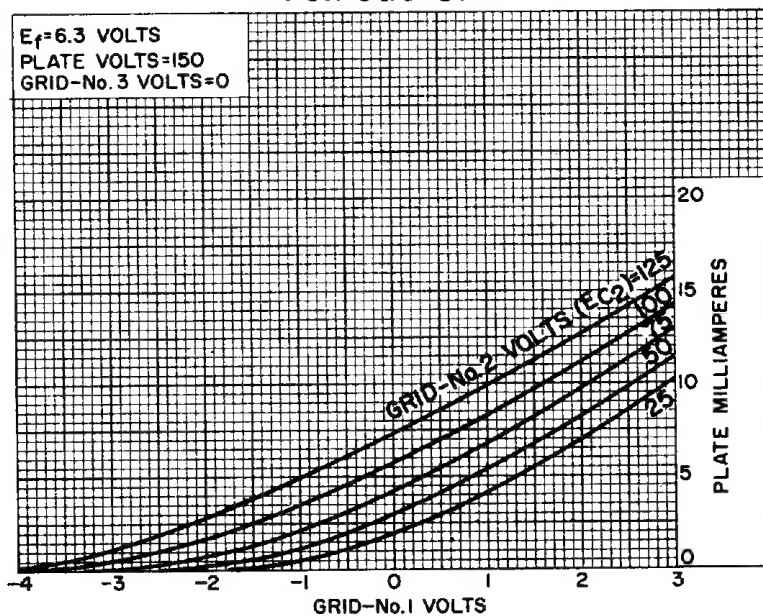
# 6AL11

## OPERATION CHARACTERISTICS Beam Power Unit



92CS-12663

## AVERAGE CHARACTERISTICS Pentode Unit

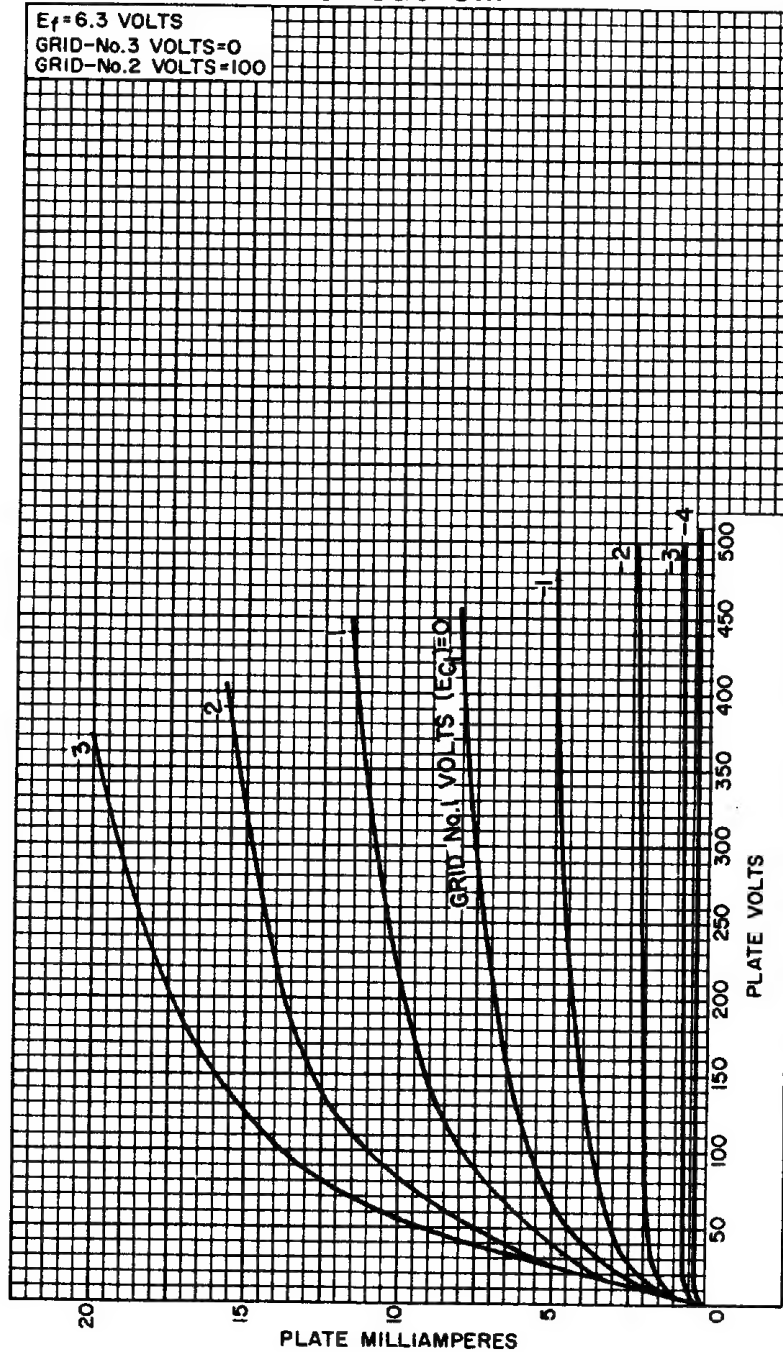


92CS-12670



# 6AL11

## AVERAGE PLATE CHARACTERISTICS Pentode Unit



92CM-12671

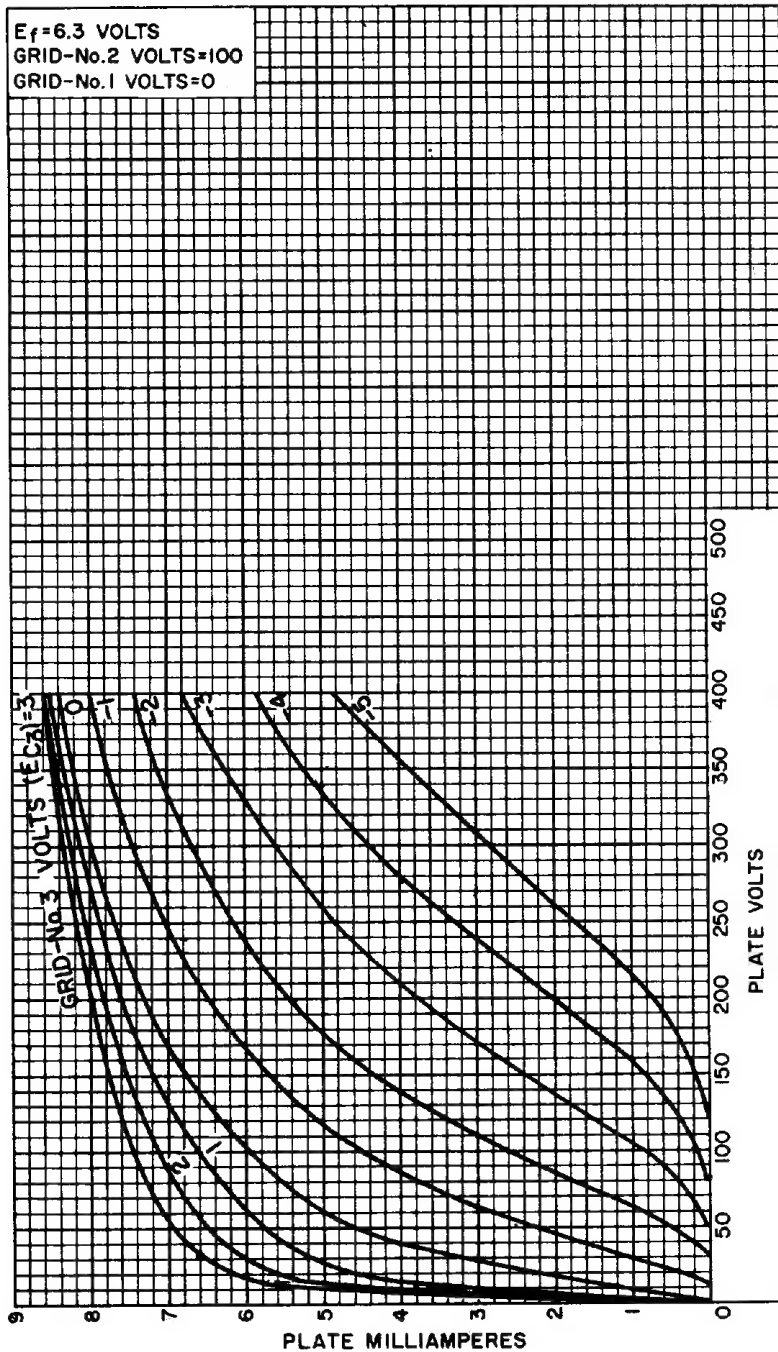


RADIO CORPORATION OF AMERICA  
Electronic Components and Devices  
Harrison, N. J.

DATA 3  
8-64

# 6AL11

## AVERAGE PLATE CHARACTERISTICS Pentode Unit



92CM-12672

RADIO CORPORATION OF AMERICA  
Electronic Components and Devices

Harrison, N. J.

